

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

0656-0249P

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

09/808006

INTERNATIONAL APPLICATION NO.

PCT/IB00/01150

INTERNATIONAL FILING DATE

July 14, 2000

PRIORITY DATE CLAIMED

July 26, 1999

TITLE OF INVENTION

VEHICLE TYRE

JC07 Rec'd PCT/PTO 26 MAR 2001

APPLICANT(S) FOR DO/EO/US

GERRESHEIM, Manfred; RIEHL, Klaus; MIYABE, Saburo and SUGIHARA, Hideaki

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39 (1).
4. ☐ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☒ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
  - a. ☐ is transmitted herewith.
  - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 20. below concern document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98/International Search Report
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
14. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821-1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☒ Other items or information:  
Four (4) Sheets of Formal Drawings

U.S. APPLICATION NO (if known, see 37 CFR 1.5)

09/806006

INTERNATIONAL APPLICATION NO

PCT/IB00/01150

ATTORNEY'S DOCKET NUMBER

0656-0249P

21. ☒ The following fees are submitted:**BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5):**

Neither international preliminary examination fee (37 CFR 1.482)  
nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO  
and International Search Report not prepared by the EPO or JPO. .... \$1,000.00

International preliminary examination fee (37 CFR 1.482) not paid to  
USPTO but International Search Report prepared by the EPO or JPO ..... \$860.00

International preliminary examination fee (37 CFR 1.482) not paid to USPTO  
but international search fee (37 CFR 1.445(a)(2)) paid to USPTO. .... \$710.00

International preliminary examination fee (37 CFR 1.482) paid to USPTO  
but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... \$690.00

International preliminary examination fee (37 CFR 1.482) paid to USPTO  
and all claims satisfied provisions of PCT Article 33(1)-(4). .... \$100.00

**ENTER APPROPRIATE BASIC FEE AMOUNT =**

Surcharge of \$130.00 for furnishing the oath or declaration later than ☒ 20 ☐ 30  
months from the earliest claimed priority date (37 CFR 1.492(e)).

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total Claims	15 - 20 =	0	X \$18.00
Independent Claims	1 - 3 =	0	X \$80.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$270.00

**TOTAL OF ABOVE CALCULATIONS =**

☐ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are  
reduced by 1/2.

**SUBTOTAL =**

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30  
months from the earliest claimed priority date (37 CFR 1.492(f)).

**TOTAL NATIONAL FEE =**

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be  
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +

**TOTAL FEES ENCLOSED =**

Amount to be:  
refunded \$  
charged \$

- a. ☒ A check in the amount of \$ 990.00 to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account. No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ to cover the above fees.  
A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any  
overpayment to Deposit Account No. 02-2448.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.**

Send all correspondence to:

**Birch, Stewart, Kolasch & Birch, LLP** or Customer No. 2292  
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Date: March 26, 2001

By

Joseph A. Kolasch, #22,463

09/806006

JCO8 Rec'd PCT/PTO 26 MAR 2001

PATENT  
0656-0249P

IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: GERRESHEIM, Manfred et al  
Int'l. Appl. No.: PCT/IB00/01150  
Appl. No.: NEW Group:  
Filed: March 26, 2001 Examiner:  
For: VEHICLE TYRE

PRELIMINARY AMENDMENT

**BOX PATENT APPLICATION**

Assistant Commissioner for Patents  
Washington, DC 20231

March 26, 2001

Sir:

The following Preliminary Amendments and Remarks are respectfully submitted in connection with the above-identified application.

AMENDMENTS

IN THE SPECIFICATION:

Please amend the specification as follows:

Before line 1, insert --This application is the national phase under 35 U.S.C. § 371 of PCT International Application No. PCT/IB00/01150 which has an International filing date of July 14, 2000, which designated the United States of America and was published in English.

IN THE CLAIMS:

Please amend the claims as follows:

4. (Amended) Vehicle tyre in accordance with claim 1, characterised in that the grooves (4, 5) extending in the circumferential direction are substantially straight grooves.

5. (Amended) Vehicle tyre in accordance with claim 1, characterised in that the spacings from the centre of the tyre of the respective inwardly disposed side walls (7, 8) of the superwide groove (4) and of the groove (5) adjacent to it in the outwardly disposed tyre tread half (3) are at least substantially the same.

6. (Amended) Vehicle tyre in accordance with claim 1, characterised in that the superwide groove (4) is disposed in the inner half of the inwardly disposed tread half (2).

9. (Amended) Vehicle tyre in accordance with claim 1, characterised in that the superwide groove (4) in the inwardly disposed tyre tread half (2) has a width of approximately 40 mm and two circumferential grooves (5) with a width of approximately 8 mm in each case are provided in the outwardly disposed tyre tread half (3).

10. (Amended) Vehicle tyre in accordance with claim 1, characterised in that the tread regions between the grooves (4, 5) and to the side of the grooves (4, 5) are provided with grooves (11) and/or fine cuts which extend obliquely to the circumferential direction of the tyre at least outside of the

tyre shoulder regions (12) and preferably with changing inclination.

13. (Amended) Vehicle tyre in accordance with claim 1, characterised in that the grooves (11) extending obliquely to the circumferential direction of the tyre have different depths over their longitudinal extent and in particular a depth which increases or first increases and then reduces towards the tyre shoulders (12).

15. (Amended) Vehicle tyre in accordance with claim 1, characterised in that additional circumferential grooves (13), the width of which only amounts to a fraction of the narrow grooves (5) are provided in addition to the superwide groove (4) and to the grooves (5) which are narrow in comparison thereto.

REMARKS

The specification has been amended to provide a cross-reference to the previously filed International Application.


The claims have been amended in order to remove the multiple dependencies. Attached hereto is a marked-up version of the changes made to the claims by this Amendment.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By

  
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JAK/slk  
0656-0249P

(Rev. 02/12/01)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims have been amended as follows:

4. (Amended) Vehicle tyre in accordance with claim 1 [or 3], characterised in that the grooves (4, 5) extending in the circumferential direction are substantially straight grooves.

5. (Amended) Vehicle tyre in accordance with claim 1 [or 3], characterised in that the spacings from the centre of the tyre of the respective inwardly disposed side walls (7, 8) of the superwide groove (4) and of the groove (5) adjacent to it in the outwardly disposed tyre tread half (3) are at least substantially the same.

6. (Amended) Vehicle tyre in accordance with claim 1 [or 3], characterised in that the superwide groove (4) is disposed in the inner half of the inwardly disposed tread half (2).

9. (Amended) Vehicle tyre in accordance with claim 1 [or 3], characterised in that the superwide groove (4) in the inwardly disposed tyre tread half (2) has a width of approximately 40 mm and two circumferential grooves (5) with a width of approximately 8 mm in each case are provided in the outwardly disposed tyre tread half (3).

10. (Amended) Vehicle tyre in accordance with claim 1 [or 3], characterised in that the tread regions between the grooves (4, 5) and to the side of the grooves (4, 5) are provided with grooves (11) and/or fine cuts which extend obliquely to the circumferential direction of the tyre at least outside of the

tyre shoulder regions (12) and preferably with changing inclination.

13. (Amended) Vehicle tyre in accordance with claim 1 [or 3], characterised in that the grooves (11) extending obliquely to the circumferential direction of the tyre have different depths over their longitudinal extent and in particular a depth which increases or first increases and then reduces towards the tyre shoulders (12).

15. (Amended) Vehicle tyre in accordance with claim 1 [or 3], characterised in that additional circumferential grooves (13), the width of which only amounts to a fraction of the narrow grooves (5) are provided in addition to the superwide groove (4) and to the grooves (5) which are narrow in comparison thereto.



VEHICLE TYRETECHNICAL FIELDS

The invention relates to a vehicle tyre having a non-uniformly profiled tread with respect to its centre.

In the design of the tread pattern of vehicle tyres an attempt must always be made to take account of a plurality of partly mutually contradicting requirements, such as for example the aquaplaning or hydroplaning behaviour, the tread wear, the noise generation, the handling characteristics and the like.

BACKGROUND ART

It is known to design the tread patterns with broad grooves to improve the aquaplaning behaviour, in particular with a very broad groove at the centre of the tread or with two comparatively broad grooves on both sides of the centre of the tread. These known tread designs are, however, associated with the disadvantage that the improvement of the aquaplaning or hydroplaning behaviour, associated with the broadening of the circumferential grooves, leads to a deterioration of characteristics which are important in the same manner for the assessment of the relevant tyre, such as above all the handling and the noise generation and/or the passing noise.

The object of the invention is to so design the tread of a vehicle tyre while generally ensuring good handling characteristics that at the same time provide a very

good aquaplaning or hydroplaning behaviour and low passing or passing-by noise.

#### DISCLOSURE OF THE INVENTION

According to the invention there is provided a vehicle tyre having a non-uniformly profiled tread with respect to its centre, characterised in that one tread half, in particular the inwardly disposed tread half related to the vehicle, has at least one circumferential superwide groove having a width of at least 30 mm and the other tread half, in particular the outwardly disposed tread half, has at least two narrower grooves in comparison thereto which likewise extend over the tyre circumference, with the superwide groove being at least twice as broad as the broadest of the narrower grooves.

Through the combination of a super-wide circumferential groove disposed in one half of the tyre tread with at least two narrower grooves in comparison thereto which are disposed in the other tread half, one succeeds, in surprising manner, in ensuring a good aquaplaning behaviour with a low passing noise, in particular avoiding the feared so-called organpipe noise when using circumferential grooves, i.e. the occurrence of resonant frequencies in the 1 kHz range.

The width of the superwide groove preferably amounts to at least approximately 30 mm and in particular to more than 35 mm, whereas the narrower grooves have a width of 15 mm or less, more preferably 10 mm and less.

Extensive freedom exists with respect to the tread design using grooves and fine cuts or sipes in the raised tread

surface regions between and to the side of the circumferential grooves. Grooves extending obliquely with respect to the circumferential plane of the tyre, are, however, preferably used in order to avoid the striking of edges of the grooves in the tread contact patch. Fine cuts or lamella cuts can, however, also be provided extending in the transverse direction.

In the overall design of the tread pattern, attention should be paid to the fact that the positive component of the tread in the outer region is larger than in the inner region with respect to the vehicle in order to take account of the handling behaviour.

In accordance with a preferred embodiment of the invention, at least the narrower circumferential grooves are connected to one another by continuously curved grooves which extend obliquely with respect to the central plane of the tyre and which preferably extend from the tyre shoulder up to and into the vicinity of the superwide groove, with their inclination relative to the circumferential direction decreasing towards the tyre shoulder.

#### **BRIEF DESCRIPTION OF DRAWINGS**

Further advantageous variants of the invention are set forth in the subordinate claims and will be explained in the description of embodiments with reference to the drawing, in which are shown:

Fig. 1 the tread contact patch of the vehicle tyre tread pattern formed in accordance

with the basic concept of the present invention;

- Fig. 2 a tread contact patch in accordance with Fig. 1 with additional patterning;
- Fig. 3 a tread contact patch in accordance with Fig. 1 with a further variant of an additional patterning; and
- Fig. 4 a plan view of a section of a tread pattern in accordance with the invention.

#### **MODE FOR CARRYING OUT THE INVENTION**

Fig. 1 shows a tyre contact patch of a vehicle tyre in accordance with the invention, with the inwardly disposed tread half with respect to the direction of vehicle travel being characterised by the reference numeral 2 and the outwardly disposed tread half with the reference numeral 3. The vehicle tyre of the invention has circumferential grooves 4, 5 on both sides of the central plane 6 of the tyre, with it being important that two types of such circumferential groups are used, namely a superwide circumferential groove 4 and, in comparison thereto, significantly narrower circumferential grooves 5. The superwide circumferential groove 4 is arranged away from the centre 6, and indeed preferably in the inwardly disposed tread half 2. The width of the superwide circumferential groove should amount to at least 30 mm and will, as a rule, lie in the range between 35 and 50 mm.

The less wide circumferential grooves 5, which can have the same or also differing widths from one another, should have a width smaller than approximately 15 mm and lie preferably in the range from 12 to 4 mm.

In the embodiment of Fig. 1 the spacings of the respective inwardly disposed side walls 7, 8 of the superwide groove 4 and of the groove 5 adjacent to it from the central plane 6 of the tyre are selected to be at least substantially the same.

Fig. 2 shows the tyre contact patch in accordance with Fig. 1, with additional oblique grooves 11 and additional circumferentially extending narrow grooves 13 provided in the groove free regions and with their widths being significantly smaller and preferably at most half as large as the width of the circumferential grooves 5 associated with the superwide circumferential groove 4 and with them preferably being located in the tread half at the outer side of the tyre.

Through the inclined grooves a structure of inter-engaging, approximately equally sized, triangular blocks is provided in the central tread region, with the grooves communicating with at least one circumferentially extending groove and thus assisting the water dissipation in the tread contact patch in the region of the narrow grooves 5, 13.

The shoulder regions 12 are designed in such a manner that they have a relatively high positive component of tread pattern, in order to ensure the required handling behaviour. In the illustrated embodiment a narrow circumferential groove 13 and inclined grooves 11, which respectively communicate therewith and extend to the outer edge of the tread contact patch, are respectively provided in these regions, with the narrow grooves 11 preferably diverging to the outer edge of the shoulder regions.

The embodiment of Fig. 3 is distinguished from the embodiment of Fig. 2 in that the shoulder regions are subdivided by inclined grooves of lower width or lamella cuts into individual blocks and thus a particularly high positive component is present, whereas the superwide groove 4 and the two narrower ribs 5 which are disposed on both sides of the central circumferential plane 6 communicate with one another by inclined grooves which leads to the formation of substantially triangular blocks.

As already mentioned, the combination of a superwide groove with at least two narrower circumferential grooves is of importance for the invention, whereas the additional tread pattern design permits a large number of variants.

Fig. 4 shows a specific example of a tread pattern design with a superwide groove 4 disposed in one tread half related to the circumferential plane 6 of the tyre and with two further circumferential grooves 5 arranged in the other tread half and having a width which respectively amounts to less than one third of the superwide groove 4, which has a minimum width of approximately 30 mm.

The circumferential grooves 4, 5 are, as a rule, formed as straight grooves, can, however, have a shape which deviates from the straight shape, for example an elongate wave or zigzag shape. The side walls of the circumferential grooves 4, 5 are slightly inclined and, in accordance with a preferred embodiment, the superwide groove 4 has a plateau 9 in its central region which is bounded on both sides by recessed regions 10.

The positive component of the tread provided with the superwide groove 4 and the narrow grooves 5 in comparison thereto is loosened up or subdivided into blocks by grooves 11 and fine cuts 14, the boundary edges of which extend in particular at an acute angle to the circumferential plane 6 of the tyre in the region between the tyre shoulders.

As can be seen from the illustration of Fig. 4, the grooves 11 are continuously curved over their length, with a part of these grooves 11 extending, starting from the tyre shoulder 14, in the form of a curved arc over the narrower circumferential grooves 5 up to the superwide groove 4 and being led back again to the starting shoulder region while retaining or enlarging the curvature. Grooves 14 curved in this manner are so offset relative to one another in the circumferential direction of the tyre that at least two similar half arc grooves are intersected by the half arc formed by a continuous grooves. Oppositely curved part grooves can branch off from these arcuately formed grooves 11 while forming a symmetrical design, with in each case two adjacent part grooves of this kind crossing each other and ending with a spacing from the circumferential grooves 4, 5.

The depths of the grooves 11 preferably differs over their length; however, the maximum groove depth of the superwide groove is as a rule always somewhat smaller than the depth of the circumferentially extending grooves 4, 5. Only in the shoulder regions 12 are the grooves 11 conducted in such a manner that block edges extending perpendicular to the central circumferential plane 6 result in a comparatively narrow outer region. Otherwise it is ensured, by the selected groove layout, that all

[illegible]



CLAIMS

1. Vehicle tyre having a non-uniformly profiled tread with respect to its centre (6), characterised in that one tread half, in particular the inwardly disposed tread half (2) related to the vehicle, has at least one circumferential superwide groove (4) having a width of at least 30 mm and the other tread half, in particular the outwardly disposed tread half (3), has at least two narrower grooves (5) in comparison thereto which likewise extend over the tyre circumference, with the superwide groove (4) being at least twice as broad as the broadest of the narrower grooves (5).
2. Vehicle tyre in accordance with claim 1, characterised in that the width of the narrower grooves (5) is 15 mm or less.
3. Vehicle tyre in accordance with claim 1, characterised in that the superwide groove (4) has a width of at least 35 mm and in that the width of the narrower grooves (5) amounts to 10 mm or less.
4. Vehicle tyre in accordance with claim 1 or 3, characterised in that the grooves (4, 5) extending in the circumferential direction are substantially straight grooves.
5. Vehicle tyre in accordance with claim 1 or 3, characterised in that the spacings from the centre of the tyre of the respective inwardly disposed side walls (7, 8) of the superwide groove (4) and of the groove (5) adjacent to it in the outwardly disposed tyre tread half (3) are at least substantially the same.
6. Vehicle tyre in accordance with claim 1 or 3, characterised in that the superwide groove (4) is disposed in the inner half of the inwardly disposed tread half (2).

7. Vehicle tyre in accordance with claim 1, characterised in that the superwide groove (4) has a varying depth when considered over its width.

8. Vehicle tyre in accordance with claim 7, characterised in that the base of the superwide groove (4) has a plateau (9) in the central region which is bounded on both sides by deepened regions (10).

9. Vehicle tyre in accordance with claim 1 or 3, characterised in that the superwide groove (4) in the inwardly disposed tyre tread half (2) has a width of approximately 40 mm and two circumferential grooves (5) with a width of approximately 8 mm in each case are provided in the outwardly disposed tyre tread half (3).

10. Vehicle tyre in accordance with claim 1 or 3, characterised in that the tread regions between the grooves (4, 5) and to the side of the grooves (4, 5) are provided with grooves (11) and/or fine cuts which extend obliquely to the circumferential direction of the tyre at least outside of the tyre shoulder regions (12) and preferably with changing inclination.

11. Vehicle tyre in accordance with claim 1, characterised in that the circumferential grooves (4, 5) are connected together at least in part by oblique grooves (11).

12. Vehicle tyre in accordance with claim 11, characterised in that the inclination of the oblique grooves (11) relative to the tyre circumferential direction reduces towards the tyre shoulders (12).

13. Vehicle tyre in accordance with claim 1 or 3, characterised in that the grooves (11) extending obliquely to the circumferential direction of the tyre have different depths over their longitudinal extent and in particular a depth which increases or first increases and then reduces towards the tyre shoulders (12).

[illegible]

Parameter	Value	Unit	Source
Age	25.0	yr	Mean
Weight	70.0	kg	Mean
Height	1.75	m	Mean
Body mass index	22.2	kg/m <sup>2</sup>	Mean
Heart rate	75	beats/min	Mean
Stroke volume	70	ml	Mean
Cardiac output	5.25	l/min	Mean
Systemic blood pressure	120/80	mmHg	Mean
Pulmonary artery pressure	25/15	mmHg	Mean
Pulmonary capillary pressure	15	mmHg	Mean
Left ventricular pressure	120	mmHg	Mean
Right ventricular pressure	25	mmHg	Mean
Left ventricular end-diastolic pressure	12	mmHg	Mean
Right ventricular end-diastolic pressure	10	mmHg	Mean
Left ventricular stroke volume	70	ml	Mean
Right ventricular stroke volume	70	ml	Mean
Stroke volume index	100	ml/m <sup>2</sup>	Mean
Cardiac output index	3.5	l/min/m <sup>2</sup>	Mean
Systemic vascular resistance	15	dynes/cm <sup>5</sup>	Mean
Pulmonary vascular resistance	1	dynes/cm <sup>5</sup>	Mean
Left ventricular stroke work	5.25	J/kg	Mean
Right ventricular stroke work	0.5	J/kg	Mean
Stroke work index	7.5	J/kg	Mean
Stroke work index (LV)	7.5	J/kg	Mean
Stroke work index (RV)	0.5	J/kg	Mean
Stroke work index (total)	8.0	J/kg	Mean
Stroke work index (LV)	7.5	J/kg	Mean
Stroke work index (RV)	0.5	J/kg	Mean
Stroke work index (total)	8.0	J/kg	Mean
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Stroke work index (LV)	7.5	J/kg	Mean
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Stroke work index (total)	8.0	J/kg	Mean
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Stroke work index (total)	8.0	J/kg	Mean
Stroke work index (LV)	7.5	J/kg	Mean
Stroke work index (RV)	0.5	J/kg	Mean
Stroke work index (total)	8.0	J/kg	Mean
Stroke work			

**ABSTRACT****VEHICLE TYRE**

A vehicle tyre having a non-uniformly profiled tread with respect to its centre, with a circumferential extending superwide groove having a width of at least 30 mm provided in one half of the tread and two further circumferential grooves which are narrower in comparison thereto and which have at most a width of 15 mm being provided in the other tread half.

FIG. 1

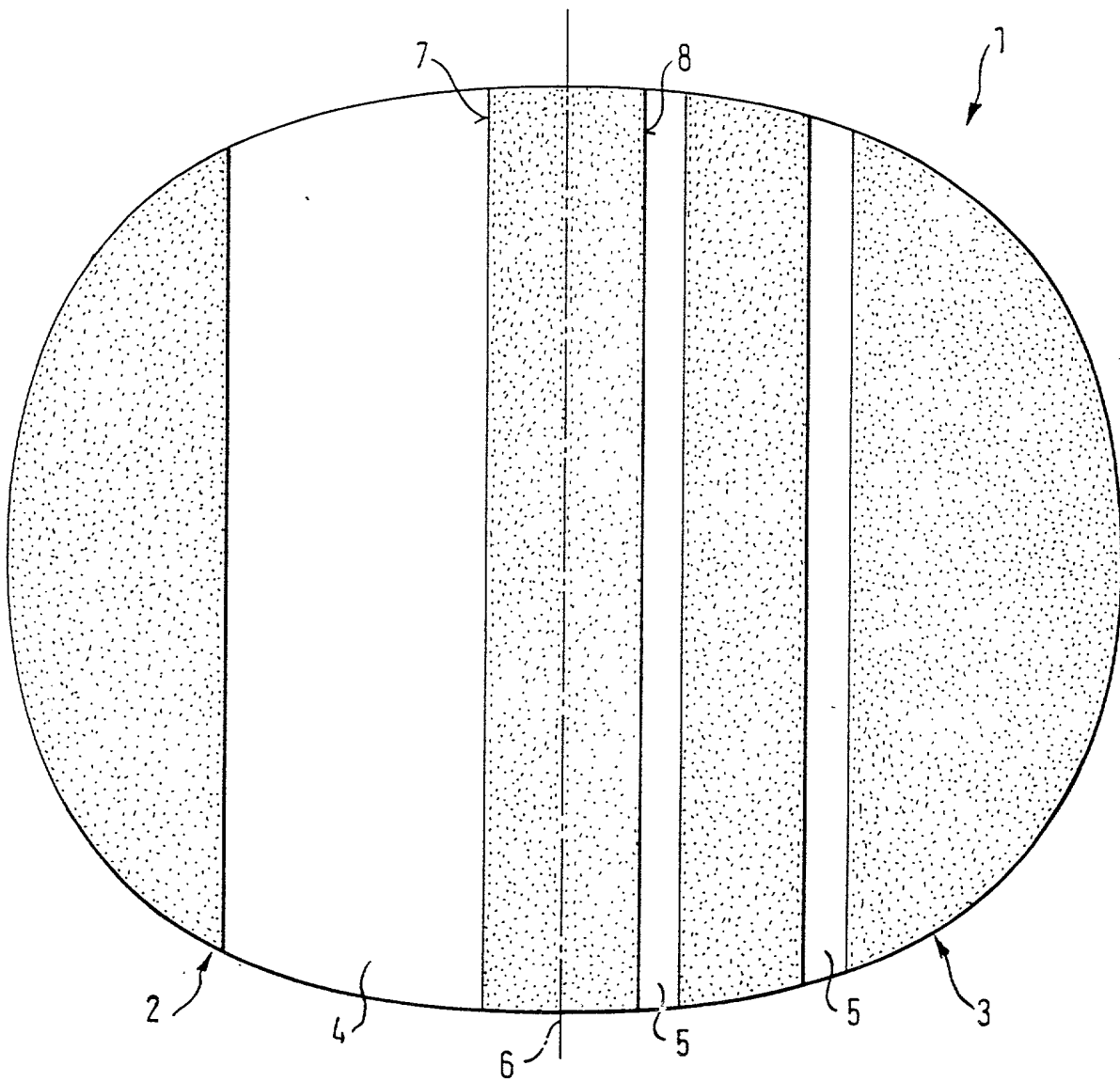


FIG. 2

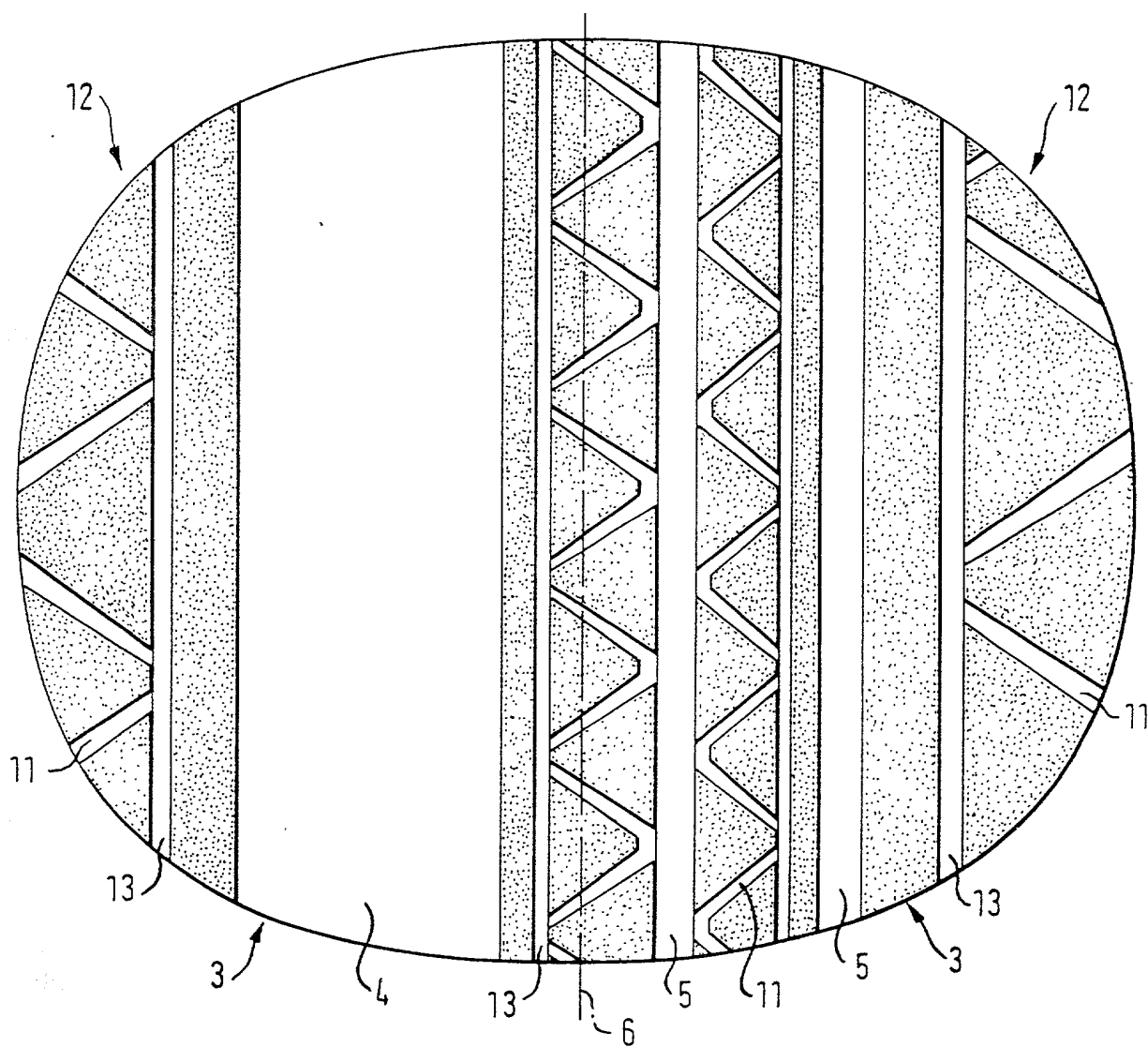


FIG. 3

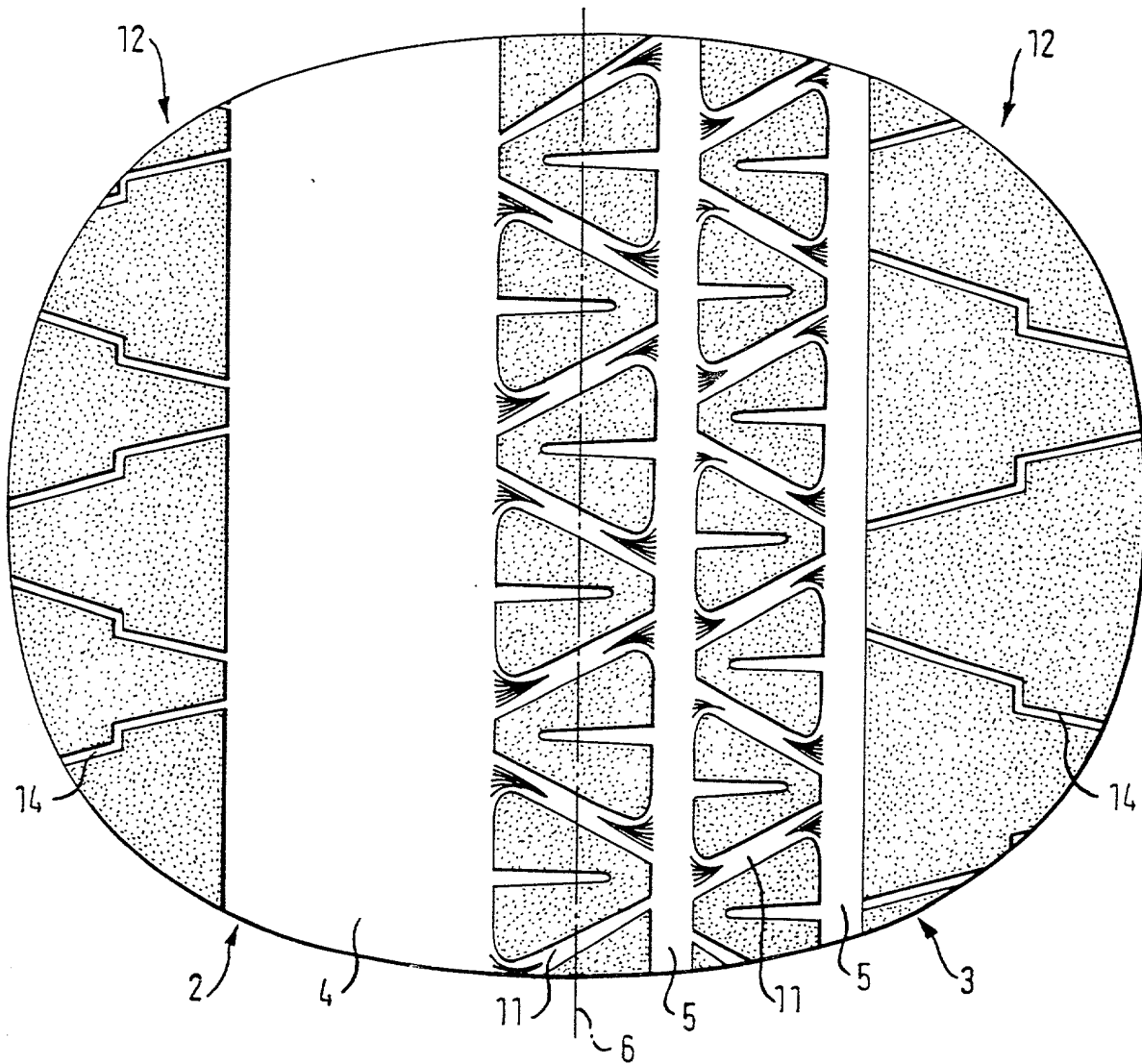
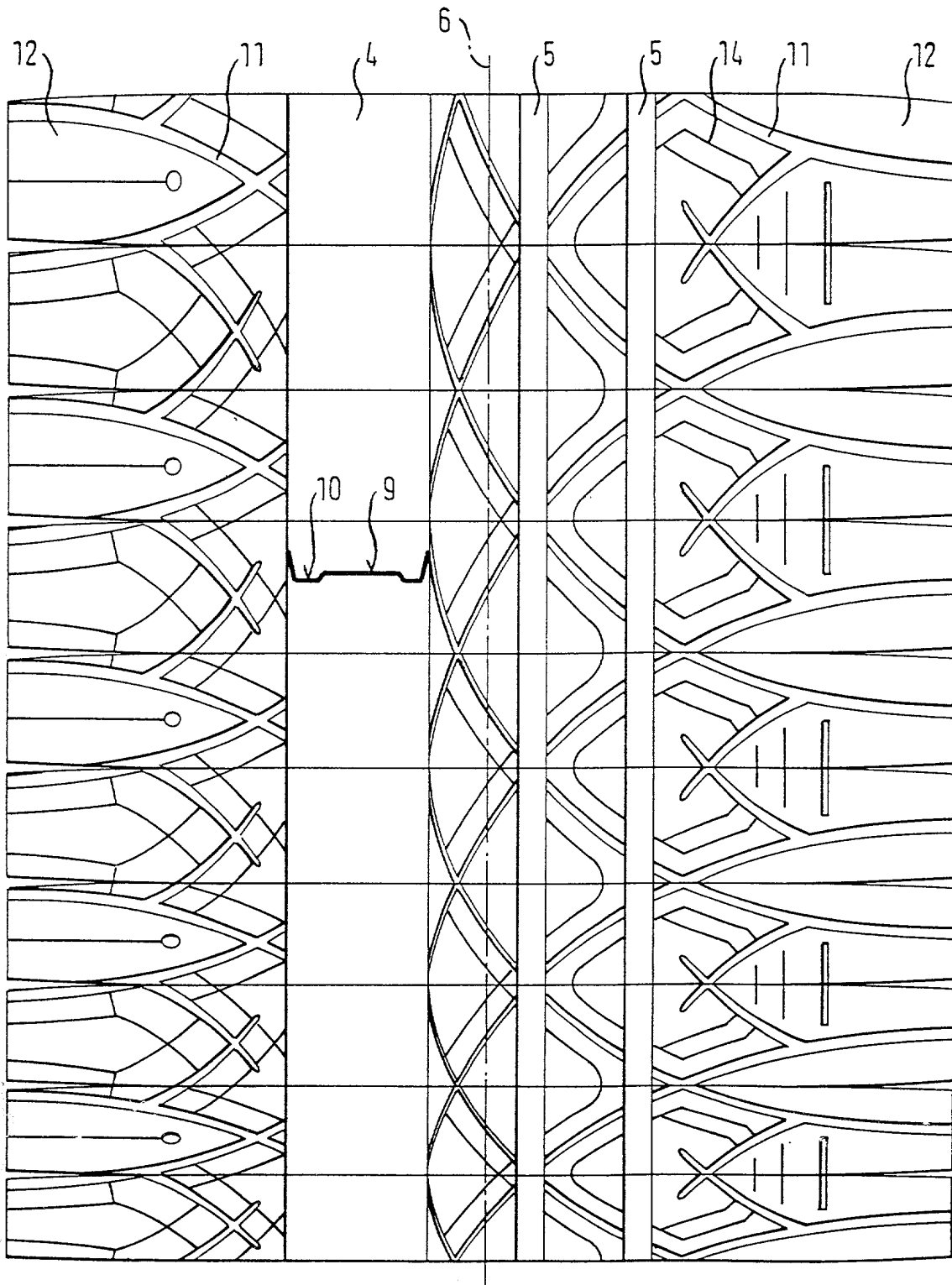


FIG. 4





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## COMBINED DECLARATION AND POWER OF ATTORNEY FOR PATENT AND DESIGN APPLICATIONS

As a below named inventor, I hereby declare that: my residence, post office address and citizenship are as stated next to my name; that I verily believe that I am the original, first and sole inventor (if only one inventor is named below) or an original, first and joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Insert Title: VEHICLE TYRE

Fill in Appropriate Information - For Use Without Specification Attached: the specification of which is attached hereto. If not attached hereto, the specification was filed on \_\_\_\_\_ as United States Application Number \_\_\_\_\_ and amended on \_\_\_\_\_ (if applicable) and/or the specification was filed on July 14, 2000 as PCT International Application Number PCT/IB00/01150 and was amended under PCT Article 19 on \_\_\_\_\_ (if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I do not know and do not believe the same was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representative or assigns more than twelve months (six months for designs) prior to this application, and that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States of America prior to this application by me or my legal representatives or assigns, except as follows.

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
<u>199 35 052.3</u> (Number)	<u>Germany</u> (Country)	<u>July 26, 1999</u> (Month/Day/Year Filed)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<u>199 40 777.0</u> (Number)	<u>Germany</u> (Country)	<u>August 27, 1999</u> (Month/Day/Year Filed)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
_____ (Number)	_____ (Country)	_____ (Month/Day/Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____ (Number)	_____ (Country)	_____ (Month/Day/Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional applications(s) listed below.

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	_____	_____
	_____	_____

All Foreign Applications, if any, for any Patent or Inventor's Certificate Filed More than 12 Months (6 Months for Designs) Prior to the Filing Date of This Application:

Country	Application Number	Date of Filing (Month/Day/Year)
_____	_____	_____
_____	_____	_____

I hereby claim the benefit under Title 35, United States Code, §120 of any United States and/or PCT application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States and/or PCT application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to the patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

Insert Prior U.S. Application(s): (if any)	(Application Number)	(Filing Date)	(Status - patented, pending, abandoned)
	_____	_____	_____
	_____	_____	_____

I hereby appoint the following attorneys to prosecute this application and/or an international application based on this application and to transact all business in the Patent and Trademark Office connected therewith and in connection with the resulting patent based on instructions received from the entity who first sent the application papers to the attorneys identified below, unless the inventor(s) or assignee provides said attorneys with a written notice to the contrary:

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of First or Sole Inventor: Insert Name of Inventor Insert Date This Document is Signed →	GIVEN NAME/FAMILY NAME <u>Manfred GERRESHEIM</u> 100	INVENTOR'S SIGNATURE <u>Manfred Gerresheim</u>	DATE* 04/10/01
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\*DATE OF SIGNATURE